

### **REMARKS**

In the outstanding Office Action, Claims 13 and 14 were rejected under 35 U.S.C. §112, second paragraph. In addition, Claims 1-6, 10, 12, 15-23, 27, and 29-40 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Number 5,978,709 to Begemann et al. Claims 7-9, 11, 24-26, and 28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Begemann et al. in view of U.S. Patent Number 5,951,593 to Lu et al. Claims 13 and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Begemann et al. in view of U.S. Patent Number 5,253,644 to Elmvist. Reconsideration is respectfully requested in light of the above claim amendments and the following remarks.

### **REJECTION UNDER 35 U.S.C. §112**

Claims 13 and 14 were rejected as being indefinite. By this amendment, those claims have been amended to more particularly point out and distinctly claim the invention. In particular, the dependency of each claim was changed to depend from claim 12 rather than from claim 11.

### **REJECTION UNDER 35 U.S.C. §102**

Claims 1-6, 10, 12, 15-23, 27, and 29-40 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Number 5,978,709 to Begemann et al. Reconsideration is respectfully requested in light of the above claim amendments and the following comments.

Applicants' claimed invention, as set forth in amended claims 1, 17, 18, 30, and 36, is directed to a system and corresponding method that paces the heart at an overdrive pacing rate. The claimed system includes a detection unit that monitors for intrinsic heart beats during overdrive pacing. The system further includes an overdrive pacing rate increment unit that increases the overdrive pacing rate if at least two intrinsic beats are detected during a predefined period between about 8 and about 40 cycles.

Thus, the claimed system and method begins overdrive pacing at some predefined rate, and if at least two intrinsic beats are detected within an interval between about 8 and about 40 beats, then the overdrive pacing rate is increased. In this manner, the claimed system and method provide a dynamic system that adjusts during overdrive pacing based on detection of at least two intrinsic beats within the relatively long period.

In contrast, the Begemann et al. reference discloses a system and method for overdrive pacing that increases the overdrive pacing rate based on either 1) a single intrinsic event, or 2) 2-3 consecutive atrial senses (Col. 8, lines 50-54). Nowhere do Begemann et al. teach or in any way suggest a system that sets a period of between about 8 and about 40 cycles, and that looks for at least two beats within that period. Rather, Begemann et al. disclose systems that are either too sensitive (increasing the overdrive rate based on a single intrinsic event), or that only respond after the patient is likely already in fibrillation (based on 2-3 consecutive intrinsic events). Thus, at most Begemann et al. teach looking for three consecutive atrial senses. But nowhere do Begemann et al. teach setting a relatively long period between about 8 and about 40 cycles, and of then looking for at least two intrinsic events within that period, where the intrinsic events may be separated by a large number of paced beats.

According to the Examiner, at col. 8, lines 20-32 Begemann et al. disclose setting a period of 10 cycles for detecting one or more intrinsic atrial events. However, what Begemann et al. describe in that paragraph is the amount by which the pacing rate will be increased upon detecting an intrinsic atrial event. Begemann et al. disclose that "[w]hile a step of 15 ppm is suitable, it is to be noted that the step may be a design variable, e.g., it could be in a range of 10-20 ppm...". Thus, rather than describing a predetermined period of 10 cycles in which to look for intrinsic events, Begemann et al. disclose that the pacing rate increase can be 10 paces per minute (ppm).

Therefore, Begemann et al. fail to teach or suggest a system in which a predetermined period of between about 8 and about 40 cycles is used to monitor for at least two intrinsic events, and wherein an overdrive pacing rate is increased in response to detecting two such events within the period. Begemann et al. only teach looking for a single intrinsic event, or 2-3 consecutive events. Thus, there is no teaching of setting a

predefined period and of looking for at least two intrinsic events within the period. Thus, it is respectfully submitted that the claims are not anticipated by the Begemann et al. reference.

### **REJECTIONS UNDER 35 U.S.C. §103**

Claims 7-9, 11, 24-26, and 28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Begemann et al. in view of U.S. Patent Number 5,951,593 to Lu et al. Claims 13 and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Begemann et al. in view of U.S. Patent Number 5,253,644 to Elmvist. Reconsideration is requested.

As described above, Begemann et al. fail to teach or suggest a system that sets a period of between about 8 and about 40 cycles and of then monitoring for at least two intrinsic events within that period; as such, the independent claims are believed allowable over Begemann et al. Therefore, the rejections under §103 are believed to be overcome by the claim amendments made herein, and by the above remarks.

### **CONCLUSION**

In light of the above claim amendments and remarks, it is respectfully submitted that the application is in condition for allowance, and an early notice of allowance is requested.

Respectfully submitted,

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